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that the Panama conglomerate belongs to the base of the Catskill, and probably also the Marshall grits of Michigan.

No representative of the Catskill has yet been found or recognized so far as I am aware in Michigan. A gap is left in the Michigan section between the Chemung and the Lower Carboniferous.

Mr. Lesley remarked on this paper of Prof. Claypole's, that he could not agree with the sentiment expressed in its introduction respecting the doubtful propriety of the use of the term "Catskill formation" as an equivalent of Prof. Roger's "Ponent formation."

It is a mistake to suppose that the "Catskill formation" was based in any degree upon fossil forms, any more than was the "Ponent." The two terms are completely and exactly identical. The New York geologist meant by it the red rocks constituting the Catskill Mountain massif, overlooking the Hudson valley, and extending unbroken far into Pennsylvania, and in fact through Pennsylvania into Maryland and Virginia. It was described as a pile of nearly horizontal Devonian strata destitute of fossils remains, except a few macerated plants and one or two types of fish. Mr. Rogers had to describe the same mass of strata, with the same lithological constitution and topographical aspect, and perfectly continuous with it geographically. There never was any question, nor is there now any question of the identity of this mass of strata in the two States. But as Mr. Rogers declined to accept any of the Palæozoic names of New York and invented a new nomenclature for his own use in Pennsylvania, he substituted *Ponent* for "Catskill," as he substituted *Medidial* for "Oriskany," *Postmedidial* for "Upper Helderberg," *Cadent* for "Hamilton," *Vergent* for "Chemung and Portage," &c. The only essential change he made was in giving a separate name, *Vespertine*, to the gray sandstone strata forming the peaks of the Catskill. These had been left unnamed (or included under the general name "Catskill") because the N. Y. geologists had no clue to their topographical significance, which only appears after passing west of the Lehigh, where, upturned vertically, they constitute a separate range of mountain.

In the reports of the Second Geological Survey the transcendental nomenclature of the brothers Rogers has been set aside in favor of the older, classical and generally accepted nomenclature of the New York geologists. As the gray sands of the Catskill peaks form the top coating of the Pocono tableland in Pennsylvania, the name "Pocono" has been substituted for *Vespertine*; but this leaves the term *Ponent* represented, as it always has been, by "Catskill."

The discussion in New York respecting the lower limit of the Catskill formation (recently settled by the proper placing of the Oneonta sandstone) has always left the great Catskill formation unaffected. So in Pennsylvania, the 100' of transition beds at the bottom of the *Ponent* and at the top of the *Vergent*, do not affect in the least the broad fact that *Ponent* is "Catskill" and *Vergent* is "Chemung." No palæontological discoveries can ever alter these established relationships.

The discovery of Catskill fish-forms down in the Chemung has no more bearing on the name "Catskill" than it has on the name *Ponent*; for "Catskill" and *Ponent* are merely synonyms for the 3000' + of red and gray sands and shales of the Catskill-Pocono-Alleghany mountain range which present a continuous outcrop from the Hudson to the Potomac.

The discovery of Catskill fish-forms down in the Chemung merely adds one more item of evidence to the now almost accepted conviction that the task of devising geological names of the first and second order cannot safely be entrusted to palæontologists, but that they must limit their function as namers of strata to names of the third and fourth order, as the geologists of the continent of Europe have been content to do for some years back, designating the groups of beds in a subdivision of a formation by some characteristic fossil form; as, for instance:—TRIAS; 1. Grès bigarré; 1. b. Grès à *Woltzia*. The fact is becoming patent to all eyes, that the occurrence of special fossil forms in a rock is no evidence of the exact age of that rock until after its exact age has been settled topographically or structurally.

If then the new fish-form be a Catskill fish found in Chemung rocks, it will not make the upper part of the Chemung, Catskill. It merely happens that a Chemung fish is also a Catskill fish. And so of any other fossil form discovered under similar circumstances.

Mr. Lesley added that the discovery of the Kingsmill White Sandstone fossils by Prof. Claypole is important for the future settlement of the question: What becomes of the Catskill formation going west into Western New York, Ohio and Michigan? If we could trust the evidence of fossil forms for establishing a lithological horizon — if we were sure that there were an immovable horizon extending more than 500 miles (S. E. and N. W.) characterized by Hall's *Euomphalus depressus*, and *Cypricardia contracta*, Winchell's *Edmondia æquimarginalis*, and Shumard's *Allorisma Hannibalensis*—and if this horizon be seen at Marshall in Michigan just under the *Coal measures*, at Panama in Western New York considerably below the *Venango Oil measures*, and in Perry County, Middle Pennsylvania, just below the bottom of the great *Catskill formation*—everybody who believes in this kind of evidence must accept the conclusion that there is a *time gap* in the Michigan and Northern Ohio section to be measured by many thousand feet of Pennsylvania strata, the majority of which are Catskill; and that this gap happens between the "Marshall grit" of Michigan and the next overlying strata.

But the fact must be kept in view, that no interval of time can elapse between emergence and resubmergence, without the interval being accented by erosion which has gone on during the interval. If the time interval in question extended through the Catskill era, Michigan standing above sea level, there should not only be a plane of paleontological non-conformity, but also nonconformable bedding; and, in soft Devonian measures, this would be deeply sculptured. None such being known in Michigan, we must conclude that the time-interval was spent *under water*; but in that case sedimentation must have gone on. We are therefore shut up to the conclusion that several thousand feet of Perry County, Pennsylvania, deposits are represented by a few yards, feet, or perhaps only inches of Michigan rocks; yet nevertheless perfectly and conformably represented.

Early Records of the Society.

Mr. Lesley, in reporting the completion of his MS. Condensed Copy of the Minutes of the Society, upon which he has been engaged, at intervals, during the last two years, said:

These Minutes, preserved in ten volumes, commence with Franklin's letter of 1744, and reach to the last meeting in December, 1837, after which the Proceedings were regularly printed for the use of the members, at first four times, and then twice a year, the first issue of 1838 being numbered 1, and the last issue of 1882, 112.

Vol. I,	1838, 1839, 1840, contains	Nos. 1 to 14.
Vol. II,	1841'3, contains	Nos. 15 to 26.
Vol. III,	Celebration of the Hundredth Anniversary,	No. 27.
Vol. IV,	1845'7, contains	Nos. 28 to 39.
Vol. V,	1848 to 1853—	Nos. 40 to 50.
Vol. VI,	1854 to 1858—	Nos. 51 to 60.
Vol. VII,	1859 to 1860—	Nos. 61 to 64.
Vol. VIII,	1861, contains	Nos. 65 and 66.
Vol. IX,	1862 to 1864—	Nos. 67 to 72.
Vol. X,	1865 to 1868—	Nos. 73 to 80.
Vol. XI,	1869 and 1870—	Nos. 81 to 85.
Vol. XII,	1881 and 1872—	Nos. 86 to 89.
Vol. XIII,	1873 and 1874—	Nos. 90 and 91.
Vol. XIV,	1875, contains	Nos. 92 to 95.
Vol. XV,	1876, contains	No. 96.
Vol. XVI,	1876 and 1877, contains	Nos. 97 to 99.
Vol. XVII,	1877 and 1878—	Nos. 100 and 101.